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(71) Applicant(s)

Ford Motor Company Limited

(Incorporated in the United Kingdom)

**Eagle Way, BRENTWOOD, Essex, CM13 3BW,
United Kingdom**

(72) Inventor(s)

Stuart Michael Dunn

(74) Agent and/or Address for Service

A Messulam & Co

**24 Broadway, LEIGH-ON-SEA, Essex, SS9 1BN,
United Kingdom**

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(56) Documents Cited

GB 2250250 A

EP 0310261 A1

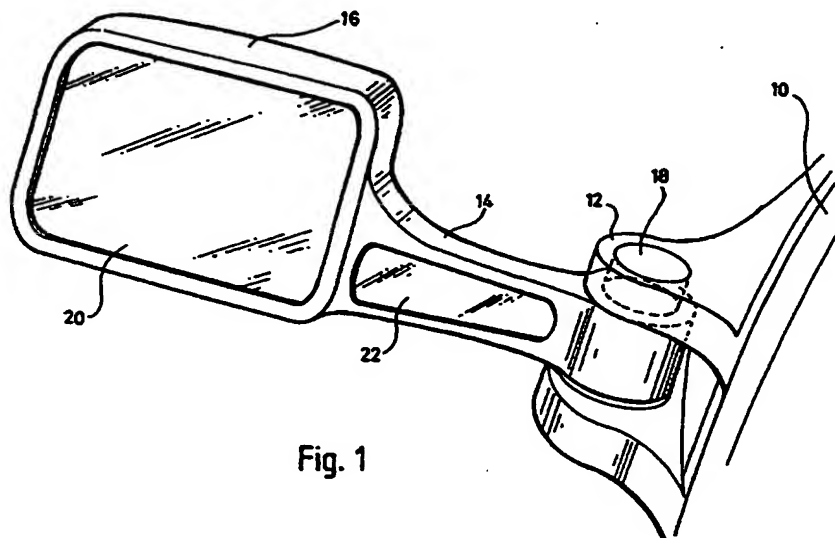
(58) Field of Search

UK CL (Edition N) B7J J69

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(54) Rear view mirror unit

(57) A rear view mirror unit for a motor vehicle has a blind spot eliminating mirror 22 incorporated into the arm 14 which supports the main mirror surface 20 outboard from the vehicle.



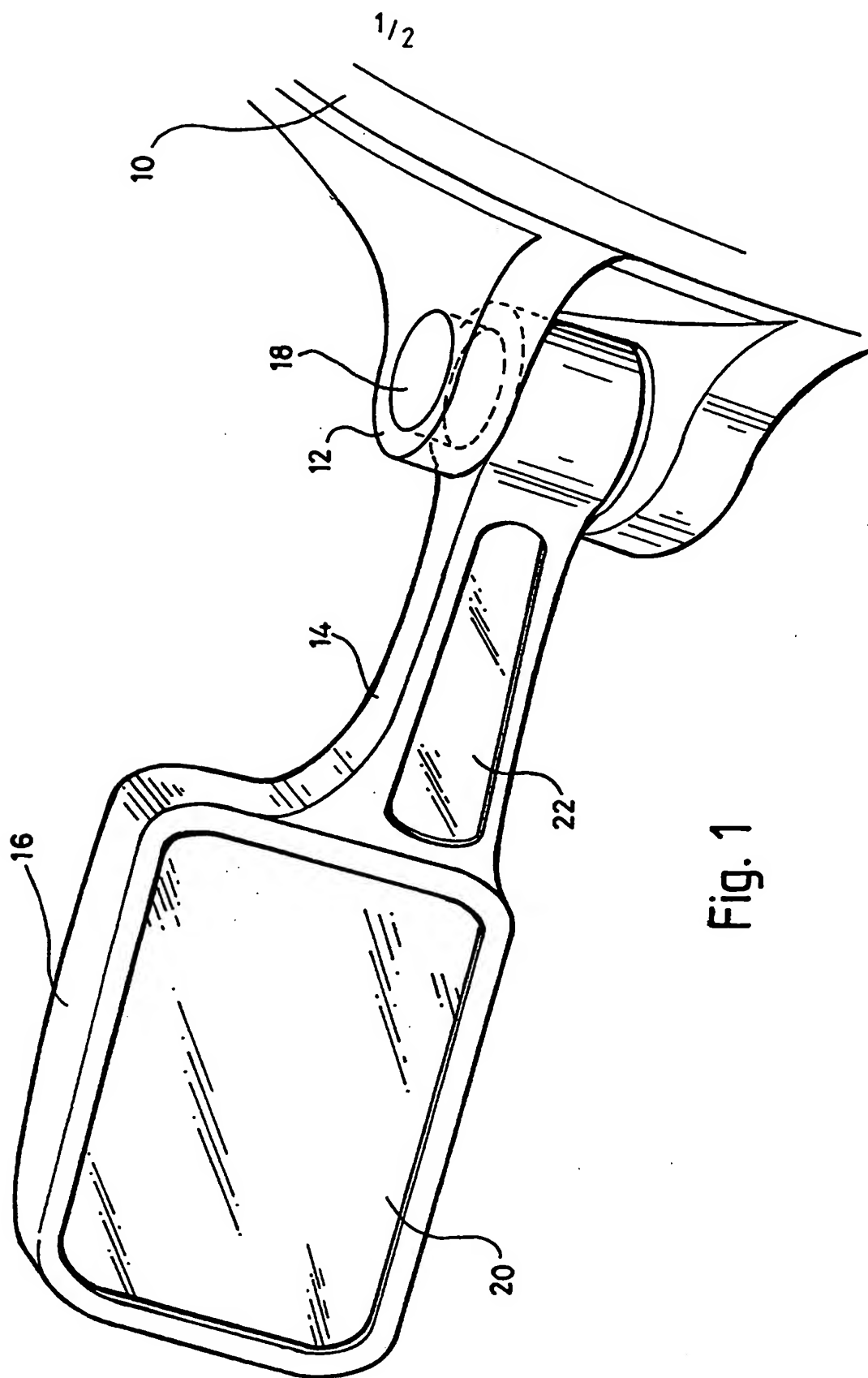


Fig. 1

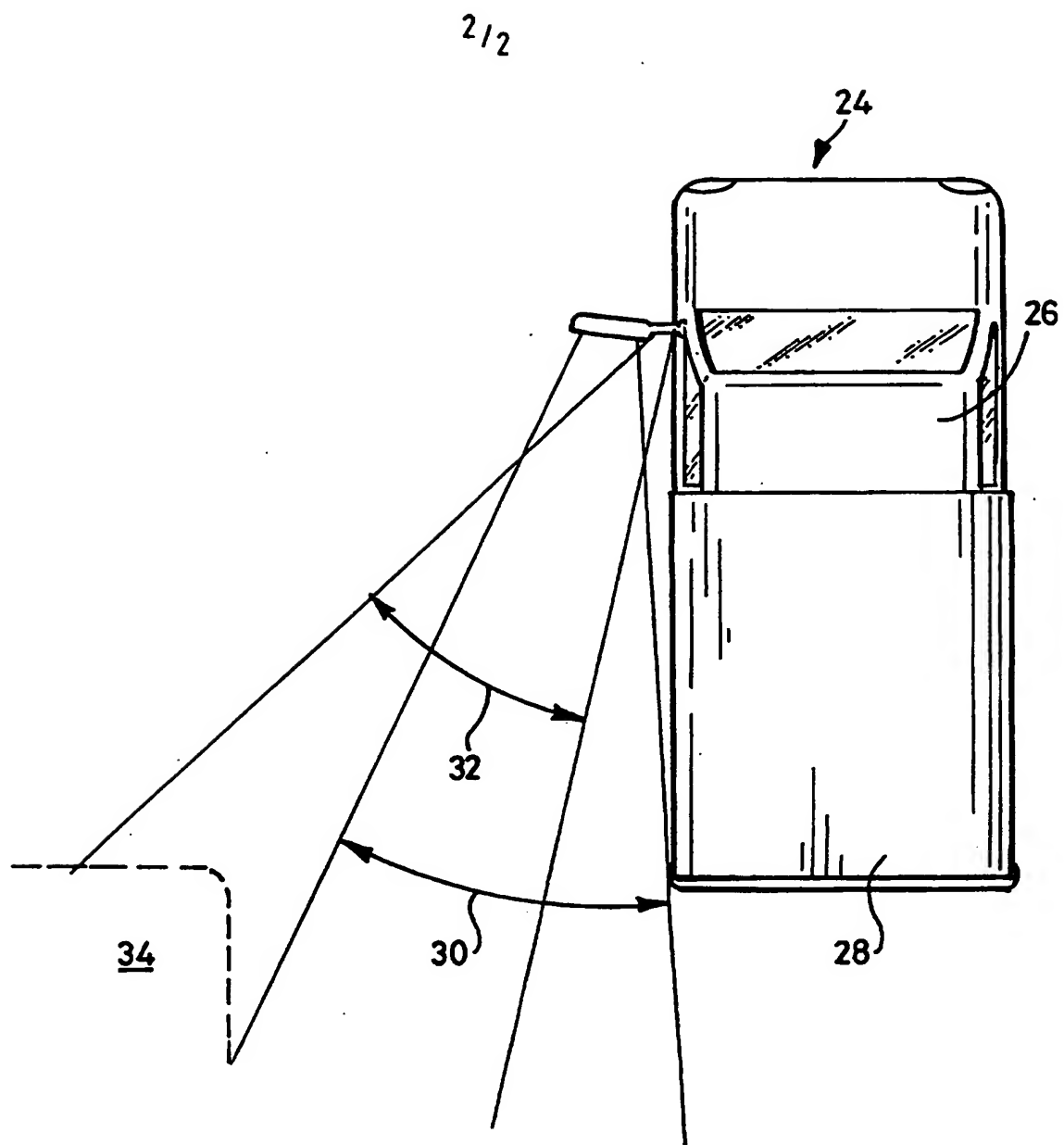


Fig. 2

REAR VIEW MIRROR

5 This invention relates to a rear view mirror unit for mounting externally of the passenger compartment on a motor vehicle, to allow the driver to see behind the vehicle.

10 Rear view mirror units mounted on the leading edge of the front doors are well known. Such mirrors provide a good view behind the vehicle, but do not generally allow the driver to view the so-called "blind spot" behind and to the side of the driver's position.

15 It is known to provide an auxiliary rear view mirror which is angled specifically to allow viewing of this blind spot, but the positioning of this additional mirror causes some problems.

20 If the mirror is mounted on the reflecting surface of the main mirror, then part of the required area of the main mirror is lost. Also the auxiliary mirror cannot be adjusted independently of the main mirror.

25 If the auxiliary mirror is mounted in an additional part of a mirror head, then there is an increase in size of the mirror head which is disadvantageous in terms of weight and wind resistance.

30 According to the present invention, there is provided a rear view mirror unit, the unit having a mounting bracket for fixing to the vehicle body, a mirror housing containing a rear view mirror and an arm connecting the housing to the bracket, wherein the mirror housing is articulated for movement relative to the housing and an
35 auxiliary rear view mirror is mounted in the arm.

By making use of the arm which supports the main rear view mirror as the housing for the auxiliary mirror, the auxiliary mirror can be incorporated in the unit without increasing the overall size of the unit.

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Preferably the auxiliary rear view mirror has a horizontal dimension which is at least twice its vertical dimension, so that it can be contained within the cross-sectional area of the arm.

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The arm may be articulated to the mounting bracket, and the housing may be articulated to the arm. Alternatively, however, either of these connection points or both of them could be fixed. The auxiliary rear view mirror may be fixed relative to the arm, so that its angle of view is determined by the position of the arm, or it may be mounted for angular adjustment within the arm so that its angular view can be adjusted independently of the position of the arm.

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The auxiliary rear view mirror may be planar or convex.

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The arm is preferably a plastics moulding, and the auxiliary mirror preferably does not extend beyond the upper and lower edges of the arm. The auxiliary mirror may be mounted on a conventional articulated mount in the arm, with the mirror being held in any position to which it is adjusted by friction.

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The mirror unit is preferably a drivers side rear view mirror unit, but could also be used on the passenger side of a vehicle.

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The invention will now be further described, by way of example, with reference to the accompanying drawings, in

which:

Figure 1 is a perspective view of a mirror unit in accordance with the invention, fitted on the drivers door of a left hand drive vehicle; and

Figure 2 is a plan view of the vehicle to which the mirror is attached, showing the fields of view.

10 In Figure 1, part of a driver's door is shown at 10 with a mirror mounting bracket 12 fixed in a conventional way to the exterior of the door. The mirror unit includes an arm 14 and a mirror housing 16. The arm 14 and the housing 16 in this embodiment are one piece, and the inboard end of the arm 14 is pivotally mounted at 18 to the bracket 12. The arm 14 and housing 16 can therefore be swung about a generally vertical axis.

A main rear view mirror 20 is mounted in the housing 16. This mirror 20 may be of planar or convex form, and is preferably mounted in the housing 16, by a conventional mechanism which allows it to be moved within the housing 16 to various different angles, as required by the driver. This adjustment can be carried out manually, by physically moving the mirror 20 with a hand, or by a remote control mechanism from within the vehicle with the remote control mechanism being either motor driven or manual.

Within the arm 14 is an auxiliary rear view mirror 22. This mirror which is relatively long and thin does not extend beyond the upper and lower edges of the arm. The auxiliary mirror 22 can be mounted adjustably in the arm 14, using any of the alternative adjustment mechanisms previously mentioned with respect to the main mirror 20. Again, the auxiliary mirror 22 can be of planar or convex

form.

5 Positioning the blind spot eliminating mirror in the arm
14 allows this auxiliary mirror to be incorporated in the
mirror unit without increasing the cross-sectional
dimensions of the housing 16 or of the arm 14 and
therefore without increasing the wind resistance offered
by the housing 16 or the arm 14 when the vehicle is
moving.

10 The construction shown in Figure 1 also has the advantage
that any additional mass resulting from the presence of
the auxiliary mirror 22 is close to the bracket 12 so that
any increase in mass and any increase in vibrational load
15 to be carried through the bracket is minimised.

Figure 2 shows a plan view of a van 24 with a passenger
compartment at 26 and a load box at 28. The field of view
indicated at 30 afforded by the main mirror 20 is limited
20 on the one hand by the rear corner of the load box 28, and
the angle of view will be set so that the rear corner of
the load box is just within the field of view.

25 The field of view 32 of the auxiliary mirror 22 can
however be set more widely as shown so that the driver's
blind spot which is indicated generally at 34 is covered
by the combined fields of view of the two mirrors 20 and
22.

30 It is particularly necessary to mount the main mirror 20
some distance outboard from the driver's door 10 where the
dimensions of the rear body of the vehicle are
substantial. This is particularly the case with load-
carrying vehicles such as vans and trucks, and it is
35 conventional for such vehicles to have mirrors mounted

outboard of the driver's position on stalks or arms.

5 The invention thus allows the incorporation of a blind spot eliminating mirror in a rear view mirror unit without increasing the mass and/or the wind resistance afforded by the mirror unit.

CLAIMS

1. A rear view mirror unit, the unit having a mounting bracket for fixing to the vehicle body, a mirror housing
5 containing a rear view mirror and an arm connecting the housing to the bracket, wherein the mirror housing is articulated for movement relative to the housing and an auxiliary rear view mirror is mounted in the arm.
- 10 2. A rear view mirror unit as claimed in Claim 1, wherein the auxiliary rear view mirror has a horizontal dimension which is at least twice its vertical dimension.
- 15 3. A rear view mirror unit as claimed in Claim 1 or Claim 2, wherein the auxiliary rear view mirror is contained within the cross-sectional area of the arm.
- 20 4. A rear view mirror unit as claimed in any preceding claim, wherein the arm is articulated to the mounting bracket, and the housing is integral with the arm.
- 25 5. A rear view mirror unit as claimed in any preceding claim, wherein the auxiliary rear view mirror is mounted for angular adjustment within the arm so that its angular view can be adjusted independently of the position of the arm.
- 30 6. A rear view mirror unit as claimed in any preceding claim, wherein the auxiliary rear view mirror is planar or convex.
- 35 7. A rear view mirror unit as claimed in any one of Claims 1 to 5, wherein the auxiliary rear view mirror is convex.

8. A rear view mirror unit as claimed in any preceding claim, wherein the arm is a plastics moulding, and the auxiliary mirror does not extend beyond the upper and lower edges of the arm.

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9. A rear view mirror unit as claimed in any preceding claim, wherein the auxiliary mirror is mounted on an articulated mount in the arm, with the mirror being held in any position to which it is adjusted by friction.

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10. A rear view mirror unit as claimed in any preceding claim, which is a drivers side rear view mirror unit.

15

11. A rear view mirror unit substantially as herein described with reference to the accompanying drawings.

Patents Act 1977 Examiner's report to the Comptroller under Section 17 The Search report)	Application number GB 9423315.2
Relevant Technical Fields (i) UK Cl (Ed.N) B7J (J69) (ii) Int Cl (Ed.6) B60R Databases (see below) (i) UK Patent Office collections of GB, EP, WO and US patent specifications. (ii)	Search Examiner R HOWE Date of completion of Search 23 JANUARY 1995 Documents considered relevant following a search in respect of Claims :- 1-11

Categories of documents

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Category	Identity of document and relevant passages	Relevant to claim(s)
A	GB 2550250 A (O HAYON) see whole document	1
A	EP 0310261 A1 (BRITA) see whole document	1

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